

**REMARKS**

The Office Action mailed on March 26, 2007, has been reviewed and the comments of the Patent and Trademark Office have been considered. Prior to this paper, claims 1-30 were pending. By this paper, Applicants do not cancel or add any claims. Therefore, claims 1-30 remain pending.

Applicants respectfully submit that the present application is in condition for allowance for at least the reasons that follow.

**Claim Rejections Under 35 U.S.C. §103(a)**

In the Office Action, claims 1-5, 8, 14, 15, 17, 19, 20 and 24-30 are rejected under 35 U.S.C. §103(a) as being unpatentable over Shurman (U.S. Patent No. 5,099,902) in view of Bruyneel (U.S. Patent No. 5,784,874), and claims 21-23 are rejected in view of the just-mentioned combination when further combined Coleman (U.S. Patent No. 4,724,929). Applicants respectfully traverse the rejection as to the claims above, and submit that these claims are allowable for at least the following reasons.

Applicants rely on MPEP §2143, which states that:

[t]o establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations.

It is respectfully submitted that none of the criteria of MPEP §2143 have been met in the Office Action.

The Cited References Do Not Suggest All Claim Recitations

Even if the first and second requirements of MPEP §2143 were to be considered satisfied in the Office Action (which they are not, as explained below), the cited references still do not meet the third requirement, which is that “the prior art reference (or references when combined) must teach or suggest all the claim limitations.”

Claim 1 recites, among other elements, a metal cord that includes at least two metal strands, “wherein at least one of said strands comprises a weld part wherein said strand *is interrupted and welded together.*” An exemplary embodiment of the invention is detailed at Fig. 1, which shows a strand 101d that is interrupted at locations proximate sections 106. The sections 106 of strand 101d are welded together by weld 105. Claims 25 and 26, not addressed in the Office Action, recite a near picture of the pertinent features of Fig. 1, as will be further discussed below.

Shurman does not teach or suggest these features, at least for the reason that *Shurman does not even teach using solder to secure the ends of the filament*, contrary to the assertion in the Office Action. With respect to Shurman, the Office Action states that “the filament *end* is fixed to the uninterrupted filaments of the strand using soldering.” (Office Action, page 2, emphasis added.) Not so. The section of Shurman that the Office Action identifies (col. 5, lines 46-50) does not teach/suggest using solder to hold an end together. Instead, it refers to the various bonding techniques that may be used so that the bundled filaments are held together “at three or more circumferentially-spaced securement areas 29 (FIGS. 3 and 4) [which] are formed about helical bead 1 to maintain the wire strand 2 in its assembled uniform condition.” (See Shurman immediately precedent to the section cited in the Office Action - col. 5, lines 42-45.) That is, the solder is merely used to hold the windings together, one on top of the other and next to each other (as they are not twisted – more on this below), and Shurman teaches that the securement areas 29 are positioned away from the ends of the filament. (See, e.g., Figs. 3 and 4, where securement areas 29 are positioned away from the ends 26 and 27.) Indeed, Shurman teaches away from using solder on the ends, in view of Figs. 3 and 4, and in view of the statement at col. 5, lines 29-32, which is “the ends 26 and 27 of wire strand 2 are beveled to match the angularity of the offset area in the wire to provide an

even more smooth transition and flat outer bead surfaces.” Thus, the solder Shurman teaches as being used to form the securement areas is not used to secure the ends 26/27. Shurman does not teach the features asserted in the Office Action. The other cited references do not teach or suggest this feature, and thus the third criteria of MPEP §2143 is not met for at least this reason.

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Still further, the ends of the filament bundle do not meet the recitation of a strand that includes a weld part wherein said strand is interrupted and welded together.” Elements 26 and 27 are not interruptions in a strand. Instead, they represent, at most, ends of an *uninterrupted* strand. Accordingly, even if they were soldered to the adjacent loop of filament, there is still no interruption in that filament with a weld welding the interrupted sections together. The other cited references do not teach or suggest this feature, and thus the third criteria of MPEP §2143 is not met for yet another reason. (Many of the dependent claims further differentiate from the cited references along these lines, as is detailed below.)

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Also, claim 1 recites that “the elongation at rupture of said strand at said weld part is at least 30% of the elongation at rupture of said strand away from said weld part.” (Dependent claims narrow this range to 80%, and further recite that the force at rupture of said metal cord in said weld part is at least 50% of the force at rupture of said metal cord away from said weld part, *etc.*). The Office Action points to nothing in the cited references that teach or suggest these features, and instead merely broadly asserts that the “fixing agent inherently” provides these features. (Note that one of the “fixing agents” listed in Shurman is a mere adhesive. Accordingly, the properties of the fixing agent are loosely defined, and thus may vary greatly. Thus, one cannot even say that the *desired characteristics* of the fixing agent will inherently perform as recited.)

The Shurman reference is completely silent in regard to a teaching relating to the recited elongations and strengths. Indeed, as detailed above, in the manner in which the “fixing agent” is utilized (to hold the bundle together) in Shurman, there is little if any

elongation. Regardless, even if there was some elongation, that elongation is not inherently an elongation as claimed. Applicants respectfully rely on MPEP §2112, which states that while “a rejection under 35 U.S.C. §102/103 can be made when the prior art product seems to be identical except that the prior art is silent to an inherent characteristic,” the “[E]xaminer *must* provide rationale or evidence tending to show inherency.” (MPEP §2112, subsections 3 and 4, emphasis added.) It is respectfully submitted that no evidence tending to show inherency has been provided in the present Office Action. Further, in considering the lack of examples provided in the Office Action to support an inherency argument, it is respectfully submitted that §2112 inherency is not being properly implemented. In arriving at this conclusion, Applicants rely on the following excerpt from MPEP §2112:

The fact that a certain result or characteristic may occur or be present in the prior art is not sufficient to establish the inherency of that result or characteristic. *In re Rijkaert*, 9 F.3d 1531, 1534, 28 USPQ2d 1955, 1957 (Fed. Cir. 1993) (reversed rejection because inherency was based on what would result due to optimization of conditions, not what was necessarily present in the prior art); *In re Oelrich*, 666 F.2d 578, 581-82, 212 USPQ 323, 326 (CCPA 1981). “To establish inherency, the extrinsic evidence ‘must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill. Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient.’” *In re Robertson*, 169 F.3d 743, 745, 49 USPQ2d 1949, 1950-51 (Fed. Cir. 1999) (citations omitted) (The claims were drawn to a disposable diaper having three fastening elements. The reference disclosed two fastening elements that could perform the same function as the three fastening elements in the claims. The court construed the claims to require three separate elements and held that the reference did not disclose a separate third fastening element, either expressly or inherently.)

(Emphasis added.) Inherency means that *the missing descriptive matter is necessarily present* in the reference. The courts have allowed the PTO to rely on inherency arguments to free the PTO from the necessity of finding references which explicitly state that inherent elements are present. This is because certain characteristics are inherent, the references will most probably not mention these elements, and, as such, will be difficult to find. For example, it is not

necessary to find a reference that explicitly states that plutonium 239 is radioactive, as plutonium 239 is always radioactive. That is, radioactivity is an inherent feature of plutonium 239. However, inherency is not a panacea that enables the PTO to use references which are *deficient* in teaching certain elements of a claim. Recognizing the power of the inherency argument, the courts have tempered its use, as is seen in §2112, where the PTO has stipulated that the examiner must follow certain procedures before invoking inherency: the “examiner must provide rationale or evidence tending to show inherency.” In the present case, no such rationale or evidence has been provided in the Office Action. The statement that the “fixing agent inherently” provides the claimed features does not satisfy the PTO’s burden to provide rationale or evidence showing that “the missing descriptive matter is necessarily present.” The subject matter claimed in claim 1 (and the pertinent dependent claims) is not *necessarily present* in Shurman. It is entirely probable that the Shurman will be practiced without the recited elongations and strengths. Just as was the case of the third fastener in the example provided in the MPEP quoted above, the subject matter of Applicants’ claims is not expressly or inherently disclosed in Shurman. Thus, a reference that explicitly teaches these limitations must be found, or else the claims must be allowed. Since Shurman does not teach these features (and, in fact, teaches away from the features in view of its use of the “fixing agent” as a mere binder), the claims are allowable.

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Claim 25 recites that the weld part comprises two strand ends that have been welded together. Claim 26 recites that the two strand ends are welded face to face. The Office Action does not comment on these claims, and points to nothing in the prior art that teaches or suggests these features. Indeed, Shurman teaches away from the features of these claims, as his ends are positioned far apart from one another, and his ends are not welded, as detailed above. Accordingly, these claims are allowable for this additional reason.

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Regarding the various claims that include recitations relating to the lay length, the Office Action asserts that these recitations “would be obvious to the ordinary skilled artisan

based upon the strength required.” It appears that the Office Action relies on common knowledge in the art, as is discussed and permitted in MPEP §2144.03, to satisfy the first requirement of MPEP §2143. However, Applicants note that §2144.03 allows an applicant “to traverse such an assertion,” and that when an applicant does so, “the examiner should cite a reference in support of his or her position.” (MPEP §2144.03, second paragraph.) Absent a citation by the PTO of a reference that can be evaluated for all its teachings, Applicants hereby traverse the assertion that it would have been common knowledge in the art that the claimed feature of a welded part of at least 2.5 times a lay length of the metal cord would be obvious to the ordinary artisan. Applicants thus request, relying on §2144.03, that the PTO cite a reference and exactly identify where such a reference teaches the alleged features, or else allow at least the pertinent claims.

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The Office Action contains the curious statement: “in fact, if the weld were performed using just heat, the welded part would be indeterminable from the unwelded part, since only the cord material would be present.” This assertion of indeterminance is simply technically incorrect. The skilled artisan would be able to analyze a piece of welded material, especially steel, using ultrasonic devices, destruct tests, even visual inspection (aided as necessary with a magnifying glass and/or a microscope, etc) *etc.*, and determine that a weld is present. Again, if indeed the PTO is relying on common knowledge in the art, Applicants traverse this assertion. Applicants thus request, relying on §2144.03, that the PTO cite a reference and exactly identify where such a reference teaches that a section of cord subjected to only heat weld would be indeterminable from a section that was not so subjected to heat weld.

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In sum, even if the first requirement of MPEP §2143 were to be considered satisfied, the third requirement of MPEP §2143 is not satisfied in the Office Action, since the cited references do not teach each and every element of the present invention. Thus, the present claims are allowable.

Lack of Suggestion or Motivation to Modify or Combine the References

MPEP §2144.05(III), entitled Rebuttal Of *Prima Facie* Case Of Obviousness, states that a “*prima facie* case of obviousness may also be rebutted by showing that the art, in any material respect, teaches away from the claimed invention.” (MPEP §2144.05(III), second paragraph, emphasis added, citations omitted.) Shurman teaches that his ends are not welded, and teaches that his filaments are not interrupted. Accordingly, it is difficult to envision a device that is more opposite of claim 1 than Shurman’s teachings. Further, claim 25 recites that the weld part comprises two strand ends that have been welded together, and claim 26 recites that the two strand ends are welded face to face. Accordingly, Shurman teaches away from the present invention, and thus, to the extent that a *prima facie* case of obviousness may have been established (which it has not, as detailed above and below), that case is hereby rebutted.

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The binding agents of Shurman render the use of “plying” taught in Bruyneel unnecessary, because, as detailed above, the solder is used to keep the bundle of Shurman together. Accordingly, the skilled artisan would not have been motivated to modify Shurman as proffered. Alternatively, had the skilled artisan been motivated to use the plying of Bruyneel, the skilled artisan would have had no need for the binding agents of Shurman to bind the bundle together, as the plying would keep the bundle together. Thus, modifying Shurman in view of Bruyneel results in the elimination of the need for soldering. Either way, the present invention, including each recited element of at least claim 1, would not have been obvious in view of Shurman.

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Applicants’ invention, as claimed, is for an industrial use load bearing cable. (See for example, claims 17-19, 21, etc.) Shurman’s teachings are merely used to enhance a sidewall of a tire. The skilled artisan seeking to obtain an improved load bearing cable would not have

looked towards Shurman for teachings that could have been modified to arrive at the claimed invention. Such action would only have been undertaken (if at all) by the innovator, who is by definition not one of ordinary skill in the art. Thus, Shurman does not render the present claims obvious for this additional reason.

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MPEP §2143.01, subsection 6 states that “the proposed modification cannot change the principle of operation of a reference – If the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious. *In re Ratti*, 270 F.2d 810 (CCPA 1959).” In *Ratti*, the CCPA held that the “suggested combination of references would require a substantial reconstruction and redesign of the elements shown in the primary reference.” This substantial redesign would have resulted in changing a rigid seal to a resilient seal. Thus, a reference cannot be modified to render an invention obvious if the modification changes a principle of operation of the reference.

With the above in mind, it is respectfully submitted that because the teachings of Shurman rely on mere stacking of a filament in a bundle and binding them together using a binder, substituting the plying of Bruyneel for the stacking of Shurman would change the principle of operation of Shurman. Because modifying Shurman to utilize plying changes the principle of operation of Shurman, just as changing the rigid seal to a resilient seal was found to change the principle of operation in *Ratti*, “the teachings of [Shurman] are not sufficient to render the claims *prima facie* obvious.” (MPEP §2143.01, emphasis added.)

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In summary, because of the lack of suggestion or motivation in the prior art to modify the reference, the first requirement of MPEP §2143 has not been met and, hence, a *prima facie* case of obviousness has not been established.

Lack of a Reasonable Expectation of Success

MPEP §2143.02 permits references to be modified or combined to reject a claim as obvious only if there is a reasonable expectation of success. There is no evidence in the references, and certainly none identified in the Office Action, that one of ordinary skill in the art would have had a reasonable expectation of success in achieving Applicants' invention by combining the references. For example, the references are silent in regard to successful end-to end welding to manufacture a steel cord. As Applicants detailed in their "Background Of The Invention" section, such welded cords traditionally created an inflexible zone in the metal cord, the weld created a zone of weakness, and, when subjected to a shock effect / cascade effect, a break of one of the metal cords tended to cause a break of all the adjacent metal cords, or even the entire belt. (Applicants note that these are merely initial hurdles which are in need of being overcome for a showing of a reasonable expectation of success; more would be needed.)

The Office Action cites no patent literature in this area (again, Shurman does not teach even the application of a weld to an end of one of his filaments). This is further evidence that the ordinary artisan would not have had a reasonable expectation of success. Indeed, this is evidence of technical prejudice in this area. The ordinary artisan would not have sought to modify Shurman – he or she would have likely expected failure.

As Fig. 3 of Applicants' specification details, their welded strands (strand 31) has desirable elongation characteristics when compared to non-welded strands (strand 32). By using Applicants' invention, the problem of decreased mechanical properties in welded strands is overcome.

Thus, one of ordinary skill in the art would not have seen the combination of the references as producing a successful metal cord. Because of this, the second criteria of MPEP §2143 has not been met in the Office Action, and a *prima facie* case of obviousness has therefore not been established.

**Double Patenting**

Claims 1-19 were *provisionally* rejected under the judicially created doctrine of obviousness-type double patenting. Applicants acknowledge the provisional rejection, and submit that no further response is necessary, as the co-pending application has not yet issued as a patent, and the co-pending application was filed after the present application. Applicants cite MPEP §804(I.B) (which defines provisional rejections), as supporting their actions, and expect that the provisional rejection will be withdrawn from this application in the event that this application issues as a patent prior to the issuance of the cited copending applications.

Applicants also traverse this rejection for the reasons detailed in their Response of July 11, 2006, those reasons being incorporated herein by reference in their entirety.

**Conclusion**

Applicants believe that the present application is now in condition for allowance. Favorable reconsideration of the application as amended is respectfully requested.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§1.16-1.17, or credit any overpayment, to Deposit Account No. 19-0741. Should no proper payment be enclosed herewith, as by a check or credit card payment form being in the wrong amount, unsigned, post-dated, otherwise improper or informal or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 19-0741. If any extensions of time are needed for timely acceptance of papers submitted herewith, Applicants hereby petition for such extension under 37 C.F.R. §1.136 and authorizes payment of any such extensions fees to Deposit Account No. 19-0741.

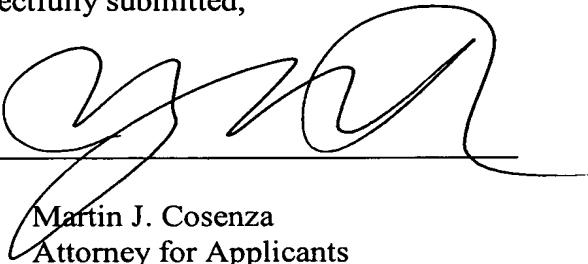
Examiner Hurley is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

Respectfully submitted,

Date

July 26, 2007

By



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